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ABSTRACT

The SQ3R method has been the backbone of textbook reading strategies for over 20 years. However, research indicates that students--even though they know how to use the technique--do not apply it because they believe it is too involved and too time consuming. Theoretically, SQ3R is a sound technique based on current knowledge about brain functions, but unless teachers can package it so that students will use it, SQ3R will become a pointless schoolroom exercise. A possible solution to this problem lies in combining SQ3R with findings in brain research on memory and with the time-spaced (distributed practice) learning theory. Coupling what researchers already know about the workings of the human brain with the SQ3R method allows students to become aware of the inner workings of the technique, and the textbook reading strategy becomes a meaningful activity rather than an externally imposed formula. (Author/HTH)

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SQ3R Doesn't Work--
Or Does It?

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Title of Presentation: SQ3R Doesn't Work . . .
Or Does It?

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Abstract:

The SQ3R study method has been the backbone of textbook reading strategies for over twenty years. However, research (Bahe, 1969; Robyak, 1978) indicates that students--even though they know the technique--do not apply it because they believe it is too involved and too time consuming. Theoretically SQ3R is a sound technique based on what we now know about brain functions (Tadlock, 1978); but unless we can package it so that students will use it, SQ3R will become a pointless schoolroom exercise. A possible solution to this problem lies in combining SQ3R with findings in brain research on memory and with the time-spaced learning theory. Coupling what we now know about the workings of the human brain with the SQ3R method allows students to become aware of the inner workings of SQ3R, and the textbook strategy becomes a more personally meaningful activity rather than an externally imposed formula.

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Resume:

Kopfstein has his B.A. and M.A. in English (Renaissance studies) from California State University, Long Beach. His M.S. (Reading) is from California State University, Fullerton, and his PhD (Medieval language, literature) is from the University of Southern California. From 1971 to 1980 he taught English and reading at Rio Hondo College in Whittier, California. Since 1980, he has taught reading, writing, literature, and has been Reading Coordinator at the South Campus of Saddleback College, Mission Viejo, California.

> As things now stand, the typical graduate of most major universities knows next to nothing about the workings of his own brain. This is particularly ludicrous when you consider that all mental life is directly dependent on the integrity and optional functioning of the brain. How absurd that a person, in order to understand the world, should study history, sociology, even psychology, yet possess no information at all about the regulator of all human activities (13:383).

Background--the problem

The SQ3R study method traces its origins to the 1920's, according to Francis Robinson (8) who did a limited sample study on its effectiveness at Ohio State University. From the earliest work of educational psychologist Edmund B. Huey in the 1880's until 1924, Robinson found that no stress had been placed on study reading strategies. Perhaps this finding should not be as surprising as it may seem because widely expanding curricula, an increasing emphasis on technology, and a broader cross section of the U.S. population attending colleges are phenomena of the post World War I era. The increased reading demands placed upon the post-war college students apparently began to outstrip their overall ability to comprehend.

Since Robinson's book (14) several authors have proposed variations of SQ3R; in 1963 Spache offered PQRST, Walter Pauk proposed OK4R in 1962 (8) and in 1975 Bergman devised T-SQUARE (10).

In essence all the methods encourage students to develop a strategy for reading large amounts of technical and unfamiliar material which involves

1. Previewing in some form or another
2. Personal association with the material to be studied
3. Careful reading
4. Reinforcement

With the dramatic growth of college effective study programs in the last twenty years, a product of more flexible admissions programs and a purported sagging literacy rate, textbook reading techniques have become popular, and consequently subject to close scrutiny if not debate among researchers.

Given the thought, the time, and the effort that has gone into the development and practical application of SQ3R (and other methods), we now must face a disturbing reality: in its present form SQ3R does not work for the average student.

Researchers (2,9,10,15,16,21) indicate that several problems exist which prevent SQ3R from being an effective practical study tool, even though theoretically it appears as if it should work:

1. Even though students know how to use the technique, they do not apply it (2,15, 16,19).
2. Students who do apply the method find it artificial, too involved, and so time consuming that the effective study strategy actually interfered with comprehension (10).
3. Many students might have more success with the technique if they <u>believed</u> it would work (19).

Some positive findings have emerged on the efficacy of study improvement programs. Most emphasize reading, which makes sense because approximately eighty-five percent of all college learning is related to the reading process (3). In a study done by Usova (22) the application of a reading/study skills course for lower ability college students positively affected both student grade average and retention. In Tillman's annotated review of studies on the relationship between reading improvement programs and grades from 1945 to 1971, the author found the rationto be three to one in favor of statistically significant positive results (20).

At best, conclusive proof that SQ3R or other effective study strategies actually benefit the student is a researcher's chimera. Johns and McNamara (8) claim that more research needs to be done to prove whether or not SQ3R is a superior study technique. To assume that such a study is even possible, given the seemingly astronomical number of possible variables in such an experiment, may be hoping for too much. A recent study by Tryon and Sy (21) indicates that study skills <u>alone</u> apparently do not improve academic performance; psychological factors must be taken into account. Katz and Wright found that the beneficial effects of improved study strategies seemed to fade in one semester. They conclude,

> Perhaps this course operates like a drug which must be administered regularly to correct a chronic deficiency. If in sufficient dosage, it would effect a "cure" then one might conclude that giving one semester of a skills course is sufficient to make them temporarily better, but not cured (9:94).

The uneven and sometimes confusing results of the research into SQ3R is perplexing. However, since reading-study strategies were proposed much has been

discovered about the workings of the human brain. Based on the comparatively recent findings on brain functions, SQ3R is a theoretically sound technique; but unless we can package it so that students will use it, SQ3R will remain a schoolroom exercise which has little to no effect on the at-home reading behavior of students.

A possible solution to this problematic gap between reading-study theory and its useful application lies in combining SQ3R with findings in brain research on memory, and with the time-spaced learning theory. The brain theory demonstrates to the student how SQ3R can be made organically compatible with how the brain functions, making the textbook strategy a more personally meaningful activity rather than an externally imposed formula.

SQ3R vs. the brain

Until now we have had the cart before the horse: the brain, with all of its built-in strengths and limitations must control SQ3R, not the other way around. In terms of Proster (program structure) Theory (6) we need to shift from the more artificial, contrived SSM (symbol selection and manipulation) mode to the more brain oriented PAC (perception, analysis and choice) mode. In other words, in place of an externally applied system, we have to show the student how to internalize the whole process of SQ3R and make study reading strategies not just a seemingly good idea learned in a school setting, but a logical, easy to assimilate, ingrained habit--or program, to use computer terminology.

In order for Proster Theory to work, there are several key requirements according to Leslie Hart (6):

1. Freedom from threat--the student must perceive the textbook as a tool over which s/he has control.
2. Reality principle--learning from the textbook needs to be as unartificial as possible: the "steps" of SQ3R need not be disjointed activities. They should be integrated into a single, easy to remember process.
3. Communications emphasis--the student needs to stress an ongoing "dialogue" with the text.
4. Manipulation emphasis--passive reception of ideas is next to no reception at all. The student must do mentally, do physically, and do emotionally if learning is to be effective and efficient.
5. Addressing for use--what is the study activity going to be used for? Why do it at all?

6. High input for pattern learning--how do the pieces of the learning puzzle fit together to form a coherent "whole?" Disparate chunks of data are soon forgotten.

This last item is particularly important. According to Smith (17:71) "there is evidence that organization and memorization are in fact the same process." Memory itself--both short term (STM) and long term (LTM) is integrally connected to comprehension, which is the principal aim of any study reading strategy.

But how does memory work? The answer is at once simple and frustratingly complex: we do not know. However, a recent theory compares memory to holographic photography

> An ordinary photograph, when cut in half or scissored into multiple sections, can be reconstructed only by placing the pieces in opposition to each other in accordance with their position in the original photograph. In holography, since the information is uniformly stored through the hologram, the original image can be reconstructed at any time (13:226).

The human memory is apparently an incredibly efficient, cross-referencial network, capable of storing billions of pieces of information for years. If students can learn to manipulate the selfsame learning methods which they have been using since they were born, and apply these methods to the textbook reading situation, their efficiency as learners will increase dramatically. This obviously is easier said than done; nevertheless, it can be done under the proper conditions.

The human brain has a few basic and reasonable demands often overlooked in the school setting

--All new material has to be constructed upon material previously learned. Smith (17,18) calls this "basic background," an essential ingredient to reading comprehension.
--Sudden insights occur when there is a joining between two or more programs which were not previously connected. Hart (6) suggests that this pehnomenon may be explained by neurons in the brain "firing" in a new or different sequence.
--Search. The Biblical "seek and ye shall find" is very close to the mark here. Apparently unless the brain actively is looking for something (information, a new stimulus, a solution to a problem), is both attentive to the task and not under threat or duress, the individual loses concentration and the mind "wanders," probably to topics more interesting, meaningful, and stimulating.
--The brain knows its limits, and it refuses to be overloaded with input. According to researchers (17,19,24) shifting information from the short term memory--itself restricted--into the long term memory cannot be done faster than one item every four or five seconds. According to Smith, "The capacity of short-term memory is restricted to about a half dozen items and if this capacity is exceeded information from short-term memory must either go into long-term memory or be permanently lost. But only one item can get from short-term to long-term memory every five seconds (17:70)."

Because of the limitations of the brain itself, and because of students' unwillingness or perhaps inability to use SQ3R as a study reading strategy, does this mean that we need to scrap the technique? Absolutely not.

SQ3R Modified

There have been several variations on SQ3R over the years, one being SQ4R (the final step being Repeat: if students are not likely to do the complex process in the first place, this step is little more than a frustrating tautology). The basic premise here is that the system of reading proposed by the SQ3R method is essentially sound; the modifications need only be superficial. It is not the basic theory that needs to be changed, only its presentation to the students. Instead of a five step process, SQ3R can be presented as a two step operation.

Step One: survey, question

The first step is really a cursory overview of the chapter. The entire process should be treated much like skimming in which the student reads quickly, perhaps setting a ten to fifteen minute limit for the entire process. The act of previewing satisfies what Smith (18) calls the "need for prediction." If a student is going to comprehens s/he has to know what is coming. The survey can also diminish the level of anxiety or threat to the student if s/he encounters at least some familiar material as s/he begins to apply a known pattern of reading to an unknown set of data.

Only two formulaic questions are necessary for the student to ask:

1. How long will this chapter take me to read? The student can then budget time accordingly.
2. What's in this for me? Purpose in reading is one of the cornerstones of comprehension. Unless the student can concretely answer this question, s/he is simply wasting time by going any further.

The remainder of the questioning concerning the content of the chapter will be automatic. Turning subheadings into questions is silly busy work. Tadlock (19:111) says "self-generated questions are more appropriate and more valuable in guiding the reading process than are teacher generated ones." Or book generated ones for that matter. As anyone looks through unfamiliar material, the brain is being stimulated with new sensory input, and will automatically seek patterns and connections.

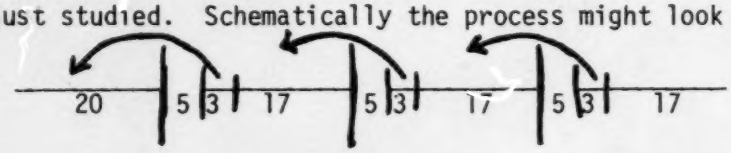
Step Two: read, recite

> A creature that sits still and does nothing cannot learn anything. Put the other way round, this reminds us once again that whatever the memory is, it is certainly a part of an action system (24:81).

Loftus (11) also corroborates the necessity for movement and learning, and cites the example of the highly efficient persistence of motor skill memories like riding a bicycle.

There is a technique called Time-Spaced (distributed practice) Learning which fits well with reading/recitation, and it integrates the process of reading and monitoring comprehension stressed by Paris and Myers (12) and Whimbey (23). Time Spaced Learning also minimizes short-term and long-term memory overload which Loftus (11), and Smith (18), caution against. The technique is relatively simple and serves to keep the student on-task, and by keeping up the level of new stimuli it discourages daydreaming.

When the student sits down to study s/he decides the length of each session, depending on the difficulty or unfamiliarity of the material. Using a clock, the student then studies for, say, twenty minute intervals, spaced by five minute breaks in which s/he gets up, moves around (gets a glass of water, makes a cup of tea, or some other preferably ritualistic task) and then returns to the textbooks, reserving the first three minutes or so of the next session for a "mini review" or recitation of what s/he has just studied. Schematically the process might look like this:



During the recitation period the student may choose to do some form of note taking, either in the text or on a separate sheet, using a systematic technique such as Information Mapping (7), or serial ordering (23). Good note taking is apparently one of the most efficient learning systems the student can use (1,4) and it helps keep the student actively involved in the reading act. The main point the student

must keep in mind is that s/he must use the timing and note system flexibly, altering it to suit the needs of the situation.

Step One (again): review

Reviewing is in essence re-skimming the material. The process is the same; only the purpose is different. In previewing the student is generally questioning and exploring the ideas for the first time, while reviewing functions as an inventory and reinforcement of what has been learned. What is crucial is that the student wait twenty-four but no more than forty-eight hours before reviewing. Whether one follows Hermann Ebbinghaus' results of an 1885 study in which he discovered that the percent of material retained declined sharply in the first forty-eight hours and then leveled off, or whether one accepts the more current biochemical "Kamin effect" (6:158), a period of a few hours is necessary for information to "jell." The student can then assess what data s/he locked into the long term memory, and what needs to be reintroduced, using his/her reading notes as a guideline, perhaps modifying the notes as necessary.

Conclusion

What cannot be emphasized enough in using SQ3R or any other study strategy is the need for personalizing and individualizing the activity. Study reading formulas alone are not enough. As Alan Lazarus stresses

> . . . students need to develop their own strategies as there is no guarantee of automatic transfer between specific "prescriptions" and mastery. Students may start by learning about certain procedures, but they should be encouraged to adapt and extend them for their own purpose and learning styles (10:44).

SQ3R can be a useful theoretical base upon which to build a flexible study reading technique, but it is up to the instructor to present it in such a way that the students can plainly see that it is a relatively easy to adapt method that produces an immediate payoff: smoother more systematic study reading that cooperates with the brain rather than making impossible rigid demands upon it.

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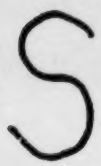
SQ3R

STUDYING TEXTBOOKS EFFECTIVELY

A Study Formula that can be used for more efficient study in any textbook assignment.

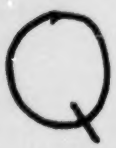
Pre-Reading warm-up:

SURVEY:



1. Locate the exact pages of the assignment.
2. Survey the entire chapter; turn every page.
3. Note the headings of the main sections.
4. Glance at pictures, maps, charts, tables, graphs.
5. Read the summary at the end of the chapter, and any study questions provided.
6. Be aware of any new vocabulary presented.
7. Set up a time schedule for reading the chapter; push yourself, but keep realistic goals.

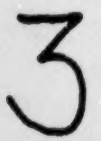
QUESTION:



1. As you SURVEY, you automatically ask QUESTIONS.
2. What does the title mean?
3. What's in it for you if you read this chapter effectively?
4. How long is it going to take you to read this chapter?
5. How do the visual aids relate to the meaning of the chapter?

As you read, take a mini break at least every twenty minutes to one-half hour.

READ:



1. Read aggressively! Go for the meaning.
2. Try to find the answers to your questions, and formulate new questions as your understanding grows.
3. Look for the ideas behind the author's words; what is he trying to tell you?
4. Read no more than one page or one section at a time before going on to the next step.
5. Be time conscious.

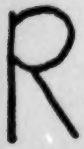
After each mini break.

RECITE:

1. You might orally recite the main ideas to yourself, to see how much of the assignment you recall.
2. You might also make notes now in order to fix details in your mind.
3. Your recitation will reveal the weak parts of the chapter that will require more attention.
4. Using as many senses as possible will strengthen learning--sight, sound, touch.

Wait 24 hours (no more than 48 hours) and then,

REVIEW:



1. Skim back through the selection to check any information you were unable to recite.
2. Fix it in your memory, either by repetition or memory association.
3. Recite and Review alternately until you have achieved satisfactory recall.